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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,154	03/24/2005	Yoshihisa Umeno	10873.1582USWO	1870

52835 7590 04/29/2008

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EXAMINER	
CORRIGAN, JOSEPH JAMES	
ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
04/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,154	UMENO, YOSHIHISA	
	Examiner	Art Unit	
	JOSEPH CORRIGAN	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over J. H. Lazar '2,747,381' in view of Scofield '2,957,067'.

In re claim 1, J. H. Lazar discloses the claimed invention:

- A cooler (28) provided on at least one side-wall side (8A) of a main body (see marked-up figure 1) formed with a thermally insulated box.
- A cooling chamber (see marked-up figure 1) in front of the cooler (28).
- A fan (58) that allows air in the cooling chamber (see marked-up figure 1) to flow. (see figure 4)
- Wherein the cooler (28) and the cooling chamber (see marked-up fire 1) are partitioned by a partition (68) so as to allow cold air to be accumulated in the cooler (28).
- The fan (58) is disposed on a side of a cooler (28) relative to the partition (68). (see figure 4)
- The partition (68) in front of the fan (58) has an aperture (66) formed in the flat sheet portion. (see figures 1 & 4)

- An open space (see marked-up figure 1) is formed between the fan (58) and the flat sheet portion (partition and bottom portion of cooler casing) in which the aperture (66) is formed (see figs. 2 and 4).
- Cold air accumulated in a space inside the partition (68) and hot air in the cooling chamber (see marked-up figure 1) are exchanged by the fan (58) through the aperture (66). Since applicant does not specifically define in claim language airflow in terms of an implied or explicit restriction to contribution from the evaporator section, an "elevator" type circular flow meets the claim limitation. In other words, since "hot air" originating in cooling chamber gets drawn up through the bottom opening (slot) in cooler casing and out through the aperture, ultimately blending the hot and cold air. Broadly speaking one can surmise by using the applicants phrasing "exchanging by the fan through the aperture" being the most dynamic segment of the mixing cycle.

Lazar, however, fails to explicitly recite that the rotation of the fan generates a discharged flow of cold air discharged from the cooler to the cooling chamber through the aperture and a sucked flow of air sucked from the cooling chamber to the cooler through the aperture.

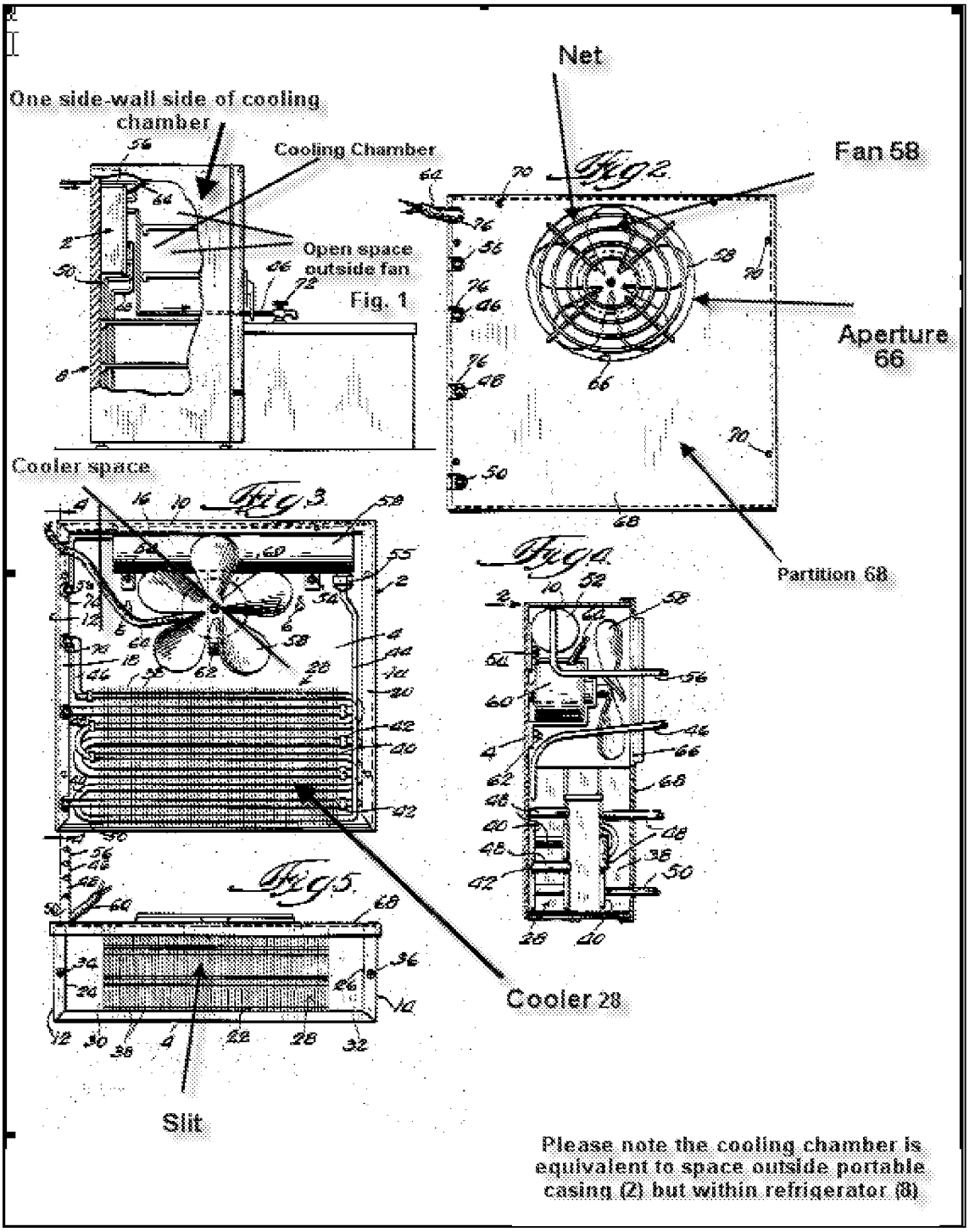
Scofield teaches (fig.1 above) and in column 4, lines 13-27 "[using an oversized fan aperture 28] "……. In normal operation the air of said streams is reasonably hot [cold], although such air may be slightly cooler [warmer] than the air of forward currents 38,39, the thermal gradient being due to inherent and unavoidable radiation of heat (cold) from the extended surfaces of flat oven (10) [refrigerator]. It will thus be seen that returning or

short-circuiting airflows (47,48) contribute substantially to the desired affect of additional heating [cooling] to areas 44,45 into which they circulate.

In addition, the introduction of such return currents 47, 48 causes added heating [cooling] of said areas 44, 45 and consequently, satisfactory heat (cold) equalization between all oven [refrigerated] areas, by the inherent creation of eddies 49, 50, 51, 52 along the boundaries of counter current air flows 47, 38 and 48, 39. Such eddies deflect heated [cooled] air, of maximum [minimum] temperature, from the currents 38, 39 which flow alongside walls 13, 14, and the deflected hot [cold] air is then diffused by such eddies In areas 44, 45. Thus the jet-like and compact form of said hot [cold] air currents 38, 39 is largely destroyed and there is created, in effect, the equivalence of an air guiding and distributing structure, in the area receiving heated [cooled] air, equivalence being provided by the mere employment of oversize fan aperture 28, in the area wherefrom air is supplied by the heaters [cooler]." ***This airflow signature in its purest form approaches an ideal three-dimensional heat gradient for cooking or cooling {value(ideal) = zero}, not unlike how multi colored ingredients in a blender become one. Temperature gradient turbulence dynamics, irrespective of its place in the heat spectrum correlates one to one up and down the heat scale, thereby satisfying airflow requirement presented by applicant***.

It would thus have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Lazar with an oversized fan aperture as taught by Scofield in order to advantageously create a more subtle temperature gradient throughout the cooling chamber by way of enhanced mixing streams of airflow, cooling

[cooking] contents more uniformly, and thereby, increasing owner satisfaction and future sales.



In re to claim 2, J. H. Lazar discloses the invention above and further discloses in fig. 2 that dimensions of the aperture (66) are larger than a diameter of the fan (58).

In re to claim 3, J. H. Lazar discloses the invention above and further discloses in fig. 4 that when viewing the fan (58) in a direction of a rotation shaft of the fan (58), the fan (58) is disposed in the aperture (66) and there is an open space (see marked up figure 1) outside the fan (58).

In re claim 5, J. H. Lazar discloses the invention above; however, he fails to disclose that the discharged airflow and the sucked flow collide with each other, thus suppressing the flow speed of the cold air.

Scofield (see fig. 1) teaches that using an oversized fan aperture one can create eddy currents, to in effect, "… deflect heated air … ", as stated in column 4, line 18, which is analogous to suppressing flow speed of cool air in a cooling system.

It would thus have been obvious to one of ordinary skill in the art at the time of the invention was made to additionally modify Lazar by over sizing the fan aperture as taught by Scofield in order to create spurious cyclonic eddy currents that enhance the mixing of the air within the cooling chamber leading to more uniform cool air distribution, and thereby, optimizing customer satisfaction and increasing future sales.

In re to claim 6, J. H. Lazar discloses invention above and further discloses in fig. 3, the fan (58) is disposed above the cooler (28).

In re to claim 7 & 9, Lazar discloses invention above, however, fails to disclose that a fan application with an area of the aperture S and a diameter of the fan R, the following relationship

$$1.5\times\pi(R/2)^2 \leqq S \leqq 2\times\pi(R/2)^2$$

D. W. Scofield teaches that a fan application with an area of the aperture S and a diameter of the fan R, the following relationship

$$1.5\times\pi(R/2)^2 \leqq S \leqq 2\times\pi(R/2)^2$$

can be satisfied by modifying J. H. Lazar to reflect this design criteria. As stated in column 3 lines 8-10, "It may briefly be said that the fan desirably covers, when rotating, only about 65% of the area of the aperture." In terms of applicants above proportionality equation it is equivalent to 1.54 within optimum range of the 1.5 to 2.0 target. Also, regarding "…. plurality of combinations of fan and aperture" restriction in claim 7 it is assumed that applicant is broadening claim by including the many possibilities of aperture/fan combinations falling within the range of above stated proportionality equation. Since Scofield's optimum design tolerance falls within said range it can be determined that increasing proportions to the "high side" of the equation will extrapolate well into applicant's proportionality curve.

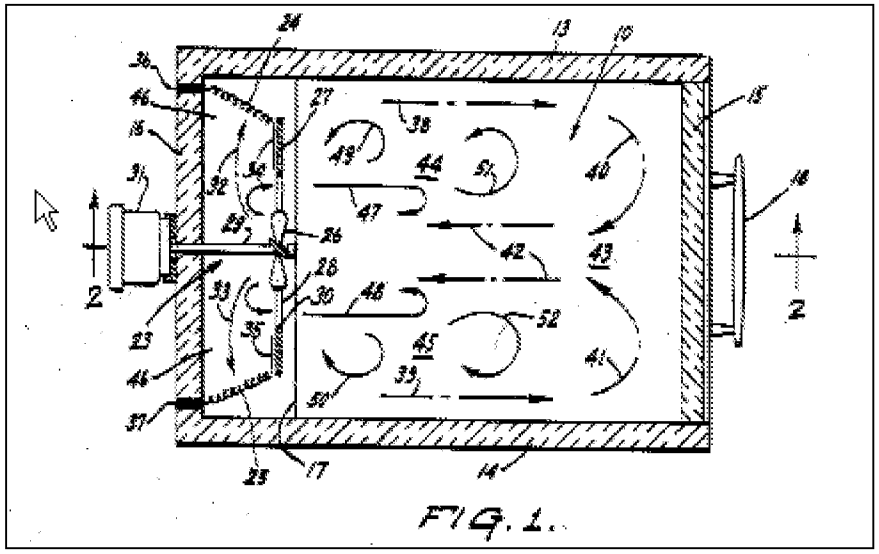
It would thus have been obvious to one of ordinary skill in the art at the time of the invention was made to additionally modify Lazar by proportioning the fan to aperture ratio in accordance with

$$1.5\times\pi(R/2)^2 \leqq S \leqq 2\times\pi(R/2)^2$$

as taught by Scofield in order to create spurious cyclonic eddy currents that enhance the mixing of the air within the cooling chamber, leading to more uniform cool air distribution, and thereby, optimizing customer satisfaction and increasing future sales.

In re claim 8, J. H. Lazar discloses invention above and further discloses that a slit is formed in the partition (68) at a portion opposed to the cooler (28) or a portion below the cooler (28). Broadly recited, a “slit” (see marked-up drawing 5) is an opening, and thus, Lazar teaches a slit.

In re to claim 10, J. H. Lazar discloses invention above and further discloses that a safety cover (see marked-up drawing 2) is disposed over the fan aperture.



Scofield Patent # 2,957,067

Response to Arguments

3. Applicant's arguments filed 8/6/07 have been fully considered but they are not persuasive for the following reasons:

- Applicant argues that Lazar does not teach or suggest the features: cold air in the refrigerator is sucked to an open portion at the lower portion of the casing and then flows unidirectionally and continuously through the unit, the fan, the opening and the cooling chamber, in that order. While Lazar does not explicitly teach these limitations, Scofield makes up for any deficiencies by teaching that it is evident the rotation of the fan generates a discharged flow of cold air discharged from the cooler to the cooling chamber through the aperture and a sucked flow of cold air sucked from the cooling chamber to the cooler through the aperture as required by the claim 1 limitations. Thus, the rejection is proper.

- Applicant argues that "cold air accumulated in a space inside the partition and hot air in the cooling chamber are exchanged by the fan through the aperture" limitation is not met by Lazar '381. This argument is not persuasive because Lazar, as modified by Scofield, cycles "cold air" and "hot air" through the slit, up through the cooler, then through opening space outside fan and finally back into cooling chamber. In broad terms, the air is mixed "through the aperture" as well as through the cooler, stalling motion of mixed air that leaves the aperture by eddy currents as taught by Scofield
- The applicant argues that the Scofield reference is not applicable because it is an oven with important structural differences; however, the teaching from Scofield focuses on aperture/fan proportion and it's responsibility for "back and forth" air mixing ability.

- The applicant argues that Lazar never contemplates the use of an oversized fan aperture structure as taught by Scofield. Examiner respectfully disagrees since the new circulation pattern would be an obvious expedient to improving airflow..

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph J. Corrigan whose telephone number is 571-270-3213. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, are Cheryl Tyler or Frantz Jules on (571) 272-4834 or (571) 272-6681, respectively. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph J Corrigan
Examiner
Art Unit 3744
4/26/08

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744